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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XE343

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the U.S. Air Force Conducting Maritime Weapon Systems Evaluation Program Operational Testing within the Eglin Gulf Test and Training Range

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; issuance of an incidental harassment authorization.

SUMMARY: In accordance with the Marine Mammal Protection Act (MMPA) implementing regulations, NMFS, we, hereby give notice that we have issued an Incidental Harassment Authorization (Authorization) to the U.S. Air Force, Eglin Air Force Base (Eglin AFB), to take two species of marine mammals, the Atlantic bottlenose dolphin (*Tursiops truncatus*) and Atlantic spotted dolphin (*Stenella frontalis*), by harassment, incidental to a Maritime Weapon Systems Evaluation Program (Maritime WSEP) within the Eglin Gulf Test and Training Range in the Gulf of Mexico from February 4, 2016 through February 3, 2017. Eglin AFB's activities are military readiness activities per the MMPA, as amended by the National Defense Authorization Act (NDAA) for Fiscal Year 2004.

DATES: Effective February 4, 2016, through February 3, 2017.

ADDRESSES: An electronic copy of the final Authorization, Eglin AFB's application and their final Environmental Assessment (EA) titled, "Maritime Weapons System Evaluation Program are available by writing to Jolie Harrison, Chief, Permits and Conservation

Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910; by telephoning the contacts listed here, or by visiting the internet at:

http://www.nmfs.noaa.gov/pr/permits/incidental/military.htm.

FOR FURTHER INFORMATION CONTACT: Jeannine Cody, Office of Protected Resources, NMFS, (301) 427-8401.

SUPPLEMENTARY INFORMATION:

Background

Sections 101(a)(5)(A) and (D) of the Marine Mammal Protection Act of 1972, as amended (MMPA; 16 U.S.C. 1361 *et seq*.) direct the Secretary of Commerce to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals of a species or population stock, by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if, after NMFS provides a notice of a proposed authorization to the public for review and comment: (1) NMFS makes certain findings; and (2) the taking is limited to harassment.

An Authorization for incidental takings for marine mammals shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant), and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring, and reporting of such taking are set forth. NMFS has defined "negligible impact" in 50 CFR 216.103 as "an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival."

The National Defense Authorization Act of 2004 (NDAA; Public Law 108–136) removed the "small numbers" and "specified geographical region" limitations indicated earlier and amended the definition of harassment as it applies to a "military readiness activity" to read as follows (Section 3(18)(B) of the MMPA): (i) any act that injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild [Level A Harassment]; or (ii) any act that disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of natural behavioral patterns, including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering, to a point where such behavioral patterns are abandoned or significantly altered [Level B Harassment].

Summary of Request

On February 5, 2015, we issued an Authorization to Eglin AFB to take marine mammals, by harassment, incidental to a Maritime Weapon Systems Evaluation Program (Maritime WSEP) within the Eglin Gulf Test and Training Range (EGTTR) in the Gulf of Mexico from February through April 2015 (see 80 FR 17394, April 1, 2015). Eglin AFB conducted the Maritime WSEP training activities between February 9-12, and March 16-19, 2015. However, due to unavailability of some of the live munitions, Eglin AFB released only 1.05 percent of the munitions proposed for the 2015 military readiness activities. On May 28, 2015, we received a renewal request for an Authorization from Eglin AFB to complete the missions authorized in 2015. Following the initial application submission, Eglin AFB submitted a revised version of the renewal request on December 3, 2015. We considered the revised renewal request as adequate and complete on December 10, 2015 and published a

notice of proposed Authorization on December 23, 2015 (80 FR 79843). The notice afforded the public a 30-day comment period on the proposed MMPA Authorization.

Eglin AFB proposes to conduct Maritime WESP missions within the EGTTR airspace over the Gulf of Mexico, specifically within Warning Area 151 (W-151). The proposed Maritime WSEP training activities would occur February through April (spring) in the daytime; however, the activities could occur between February 2016 and February 2017.

Eglin AFB proposes to use multiple types of live munitions (*e.g.*, gunnery rounds, rockets, missiles, and bombs) against small boat targets in the EGTTR. These activities qualify as a military readiness activities under the MMPA and NDAA.

The following aspects of the proposed Maritime WSEP training activities have the potential to take marine mammals: exposure to impulsive noise and pressure waves generated by live ordnance detonation at or near the surface of the water. Take, by Level B harassment of individuals of common bottlenose dolphin or Atlantic spotted dolphin could potentially result from the specified activity. Additionally, although NMFS does not expect it to occur, Eglin AFB has also requested authorization for Level A Harassment of a small number of individuals of either common bottlenose dolphins or Atlantic spotted dolphins. Therefore, Eglin AFB has requested authorization to take individuals of two cetacean species by Level A and Level B harassment.

Eglin AFB's Maritime WSEP training activities may potentially impact marine mammals at or near the water surface in the absence of mitigation. Marine mammals could potentially be harassed, injured, or killed by exploding projectiles. However, based on analyses provided in Eglin AFB's 2015 Authorization renewal request; 2014 application; 2015 Environmental Assessment (EA); the 2015 monitoring report for the authorized

activities conducted in February and March 2015; and for reasons discussed later in this document, we do not anticipate that Eglin AFB's Maritime WSEP activities would result in any serious injury or mortality to marine mammals.

For Eglin AFB, this would be the second issued Authorization following the Authorization issued effective from February through April 2015 (80 FR 17394, April 1, 2015). The monitoring report associated with the 2015 Authorization is available at *www.nmfs.noaa.gov/pr/permits/incidental/military.htm* and provides additional environmental information related to proposed issuance of this Authorization for public review and comment.

Description of the Specified Activity

Overview

Eglin AFB proposes to conduct live ordnance testing and training in the Gulf of Mexico as part of the Maritime WSEP operational testing missions. The Maritime WSEP test objectives are to evaluate maritime deployment data, evaluate tactics, techniques and procedures, and to determine the impact of techniques and procedures on combat Air Force training. The need to conduct this type of testing has developed in response to increasing threats at sea posed by operations conducted from small boats which can carry a variety of weapons; can form in large or small numbers; and may be difficult to locate, track, and engage in the marine environment. Because of limited Air Force aircraft and munitions testing on engaging and defeating small boat threats, Eglin AFB proposes to employ live munitions against boat targets in the EGTTR in order to continue development of techniques and procedures to train Air Force strike aircraft to counter small maneuvering surface

vessels. Thus, the Department of Defense considers the Maritime WSEP training activities as a high priority for national security.

Dates and Duration

Eglin AFB proposes to schedule the Maritime WSEP training missions over an approximate three-week period that would begin in early February 2016. The proposed missions would occur in the spring, on weekdays, during daytime hours only, with one or two missions occurring per day. Some minor deviation from Eglin AFB's requested dates is possible and the proposed Authorization, if issued, would be effective from February 4, 2016 through February 3, 2017.

Specified Geographic Region

The specific planned mission location is approximately 17 miles (mi) (27.3 kilometers [km]) offshore from Santa Rosa Island, Florida, in nearshore waters of the continental shelf in the Gulf of Mexico. All activities would take place within the EGTTR, defined as the airspace over the Gulf of Mexico controlled by Eglin AFB, beginning at a point three nautical miles (nmi) (3.5 miles [mi]; 5.5 kilometers [km]) from shore. The EGTTR consists of subdivided blocks including Warning Area 151 (W-151) where the proposed activities would occur, specifically in sub-area W-151A.

NMFS provided detailed descriptions of the activity area in a previous notice for the proposed Authorization (80 FR 7984, December 23, 2015). The information has not changed between the notice of proposed Authorization and this final notice announcing the issuance of the Authorization.

Detailed Description of Activities

The Maritime WSEP training missions, classified as military readiness activities, include the release of multiple types of inert and live munitions from fighter and bomber aircraft, unmanned aerial vehicles, and gunships against small, static, towed, and remotely-controlled boat targets. Munition types include bombs, missiles, rockets, and gunnery rounds (Table 1).

Table 1 - Live Munitions and Aircraft

Munitions	Aircraft (not associated with specific munitions)
GBU-10 laser-guided Mk-84 bomb	F-16C fighter aircraft
GBU-24 laser-guided Mk-84 bomb	F-16C+ fighter aircraft
GBU-12 laser-guided Mk-82 bomb	F-15E fighter aircraft
GBU-54 Laser Joint Direct Attack Munition (LJDAM), laser-guided Mk-82 bomb	A-10 fighter aircraft
CBU-105 (WCMD) (inert)	B-1B bomber aircraft
AGM-65 Maverick air-to-surface missile	B-52H bomber aircraft
GBU-38 Small Diameter Bomb II (Laser SDB)	MQ-1/9 unmanned aerial vehicle
AGM-114 Hellfire air-to-surface missile	AC-130 gunship
AGM-176 Griffin air-to-surface missile	
2.75 Rockets	
PGU-13/B high explosive incendiary 30 mm rounds	
7.62 mm/.50 Cal (inert)	

Key: AGM = air-to-ground missile; CBU = Cluster Bomb Unit; GBU = Guided Bomb Unit; LJDAM = Laser Joint Direct Attack Munition; Laser SDB = Laser Small Diameter Bomb; mm = millimeters; PGU = Projectile Gun Unit; WCMD = wind corrected munition dispenser.

The proposed Maritime WSEP training activities involve detonations above the water, near the water surface, and under water within the EGTTR. However, because the tests will focus on weapons/target interaction, Eglin AFB will not specify a particular aircraft for a given test as long as it meets the delivery parameters.

Eglin AFB would deploy the munitions against static, towed, and remotely-controlled boat targets within the W-151A. Eglin AFB would operate the remote-controlled boats from an instrumentation barge (*i.e.*, the Gulf Range Armament Test Vessel; GRATV) anchored on

site within the test area. The GRATV would provide a platform for video cameras and weapons-tracking equipment. Eglin AFB would position the target boats approximately 182.8 m (600 ft) from the GRATV, depending on the munition type.

Table 2 lists the number, height, or depth of detonation, explosive material, and net explosive weight (NEW) in pounds (lbs) of each munition proposed for use during the Maritime WSEP activities.

Table 2 - Maritime WSEP munitions proposed for use in the W-151A test area.

Type of Munition	Total # of Live Munitions	Detonation Type	Warhead – explosive material	Net Explosive Weight per Munition
GBU-10 or GBU-24	2	Surface	MK-84 - Tritonal	945 lbs
GBU-12 or GBU- 54 (LJDAM)	6	Surface	MK-82 - Tritonal	192 lbs
AGM-65 (Maverick)	6	Surface	WDU-24/B penetrating blast-fragmentation warhead	86 lbs
CBU-105 (WCMD)	4	Airburst	10 BLU-108 sub-munitions each containing 4 projectiles parachute, rocket motor and altimeter	Inert
GBU-38 (Laser Small Diameter Bomb)	4	Surface	AFX-757 (Insensitive munition)	37 lbs
AGM-114 (Hellfire)	15	Subsurface (10 msec delay)	High Explosive Anti-Tank (HEAT) tandem anti-armor metal augmented charge	20 lbs
AGM-176 (Griffin)	10	Surface	Blast fragmentation	13 lbs
2.75 Rockets	100	Surface	Comp B-4 HEI	Up to 12 lbs
PGU-12 HEI 30 mm	1,000	Surface	30 x 173 mm caliber with aluminized RDX explosive. Designed for GAU-8/A Gun System	0.1 lbs
7.62 mm/.50 cal	5,000	Surface	N/A	Inert

Key: AGL = above ground level; AGM = air-to-ground missile; CBU = Cluster Bomb Unit; GBU = Guided Bomb Unit; JDAM = Joint Direct Attack Munition; LJDAM = Laser Joint Direct Attack Munition; mm = millimeters; msec = millisecond; lbs = pounds; PGU = Projectile Gun Unit; HEI = high explosive incendiary.

At least two ordnance delivery aircraft will participate in each live weapons release training mission which lasts approximately four hours. Before delivering the ordnance, mission aircraft would make a dry run over the target area to ensure that it is clear of commercial and recreational boats. Jets will fly at a minimum air speed of 300 knots

(approximately 345 miles per hour, depending on atmospheric conditions) and at a minimum altitude of 305 m (1,000 ft). Due to the limited flyover duration and potentially high speed and altitude, the pilots would not participate in visual surveys for protected species.

NMFS provided detailed descriptions of the WSEP training operations in a previous notice for the proposed Authorization (80 FR 7984, December 23, 2015). This information has not changed between the notice of proposed Authorization and this final notice announcing the issuance of the Authorization.

Comments and Responses

A notice of receipt of Eglin AFB's application and NMFS' proposal to issue an Authorization to the USAF, Eglin AFB, published in the **Federal Register** on December 23, 2015 (80 FR 7984). During the 30-day public comment period, NMFS received comments from the Marine Mammal Commission (Commission) only. Following are the comments from the Commission and NMFS' responses.

*Comment 1***:** The Commission notes that Eglin AFB has applied for MMPA authorizations to take marine mammals on an activity-by-activity basis (*e.g.*, naval explosive ordnance disposal school, precision strike weapon, air-to-surface gunnery, and maritime strike operations) rather than through a programmatic basis. The Commission believes that the agencies should evaluate the impacts of all training and testing activities under a single letter of authorization application and National Environmental Policy Act (NEPA) document rather than segmenting the analyses based on specific types of missions under various authorizations.

Response: Both Eglin AFB and NMFS concur with the Commission's recommendation to streamline the rulemaking process for future activities conducted within

the EGGTR. In 2015, Eglin AFB developed a Programmatic Environmental Assessment as for all testing and training activities that would occur in the EGGTR over the next five years. Eglin AFB has also developed and submitted a request for a Letter of Authorization under the MMPA to NMFS for all testing and training activities that would also occur in the EGGTR over the same five year period. Both of these efforts will facilitate a more comprehensive review of actions occurring within the EGGTR that have the potential to take marine mammals incidental to military readiness activities and NMFS will be able to evaluate the impacts of all training and testing activities under a single letter of authorization application rather than segmenting our analyses based on specific types of missions under separate authorizations.

Comment 2: The Commission states that Eglin AFB overestimated marine mammal take because they based estimates on a single detonation event of each munition type which multiplied the number of animals estimated to be taken by a single detonation event for each munition type by the total number of munitions that would be detonated, irrespective of when those detonations would occur. The Commission states that this method does not consider the accumulation of energy in a 24-hour period which would more accurately correspond to zones of exposure for the representative scenario and serve as more a realistic estimate of the numbers of animals that Eglin AFB could potentially take during the WSEP activities. In estimating take, the Commission commented Eglin AFB's model approach was an additive process for estimating each zone of exposure, and thus the associated takes. Effectively, The Commission states that Eglin AFB overestimated the number of take but is unsure to what degree. Further, the Commission recommends that Eglin AFB and NMFS should treat

fractions of estimated take appropriately, that is generally, round down if less than 0.50 and round up if greater than or equal to 0.50 before summing the estimates for each species.

Response: NMFS and Eglin AFB acknowledge that this approach contributes to the overestimation of take estimates. Eglin AFB's modeling approach for take estimates treated each munition detonation as a separate event impacting a new set of animals which results in a worst case scenario of potential take and is an overestimate of potential harassment.

NMFS agrees with the Commission's recommendations and has recalculated the takes by accounting for the accumulation of energy in a 24-hour period and by eliminating the double counting of the estimated take for each species and appropriately rounding take estimates before summing the total take. Table 8 in this notice provides the revised number of marine mammals, by species, that Eglin AFB could potentially take incidental to the conduct of Maritime WSEP operations. The re-calculation results in zero take by mortality, zero take by slight lung injury, and zero take by gastrointestinal tract injury. Compared to the take levels that NMFS previously presented in the notice for the proposed Authorization (80 FR 7984, December 23, 2015), our re-estimation has reduced take estimates for Level A harassment (PTS) from 38 to 14 marine mammals. Based on the remodeling of the number of marine mammals potentially affected by the Maritime WSEP missions, NMFS would authorize take for Level A and Level B harassment presented in Table 8 of this notice.

Comment 3: The Commission states that Eglin AFB proposes to use live-feed video cameras to supplement its effectiveness in detecting marine mammals when implementing mitigation measures. However, the Commission is not convinced that those measures are sufficient to effectively monitor for marine mammals entering the training areas during the 30 minute timeframe prior to detonation. In addition, the Commission states that it does not

believe that Eglin AFB cannot deem the Level A harassment zone clear of marine mammals when using only three video cameras for monitoring. Thus, the Commission recommends that NMFS require Eglin AFB to supplement its mitigation measures with passive acoustic monitoring and determine the effectiveness of its suite of mitigation measures for activities at Eglin prior to incorporating presumed mitigation effectiveness into its take estimation analyses or negligible impact determinations.

Response: NMFS has worked closely with Eglin AFB over the past several Authorization cycles to develop proper mitigation, monitoring, and reporting requirements designed to minimize and detect impacts from the specified activities and ensure that NMFS can make the findings necessary for issuance of an Authorization.

Monitoring also includes vessel-based observers for marine species up to 30 minutes prior to deploying live munitions in the area. Eglin AFB has submitted annual reports to NMFS every year that describes all activities that occur in the EGTTR. In addition, Eglin AFB submitted annual reports to NMFS at the conclusion of the Maritime Strike Operations These missions are similar in nature to the proposed maritime WSEP operations and the Eglin AFB provided information on sighting information and results from post-mission survey observations. Based on those results, NMFS determined that the mitigation measures ensured the least practicable adverse impact to marine mammals. There were no observations of injured marine mammals and no reports of marine mammal mortality during the Maritime Strike Operation activities. The measures proposed for Maritime WSEP are similar, except they will include larger survey areas based on updated acoustic analysis and previous discussions with the Commission and NMFS.

Eglin AFB will continue to research the feasibility of supplementing existing monitoring efforts with passive acoustic monitoring devices for future missions and is in the process of discussing alternatives with the Commission and NMFS during the review of the environmental planning efforts discussed earlier in Comment 1.

Comment 4: The MMC expressed their belief that all permanent hearing loss should be considered a serious injury and recommends that NMFS propose to issue regulations under section 101(a)(5)(A) of the MMPA and a letter of authorization, rather than an incidental harassment authorization, for any proposed activities expected to cause a permanent threshold shift (PTS).

Response: NMFS considers PTS to fall under the injury category (Level A Harassment). However, an animal would need to stay very close to the sound source for an extended amount of time to incur a serious degree of PTS, which could increase the probability of mortality. In this case, it would be highly unlikely for this scenario to unfold given the nature of any anticipated acoustic exposures that could potentially result from a mobile marine mammal that NMFS generally expects to exhibit avoidance behavior to loud sounds within the EGTTR.

NMFS has recalculated the takes presented in the notice for the proposed Authorization (80 FR 7984, December 23, 2015) and the results of the recalculation show zero takes for mortality, zero takes by slight lung injury, and zero takes by gastrointestinal tract injury. Further, the re-estimation has reduced the number of take by Level A harassment (from PTS) from 38 to 14. Based on this re-estimation, NMFS does not believe that serious injury will result from this activity and that therefore it is not necessary to issue regulations through section 101(a)(5)(A), rather, an Incidental Harassment Authorization may be issued.

Description of Marine Mammals in the Area of the Specified Activity

Table 3 lists marine mammal species with potential or confirmed occurrence in the proposed activity area during the project timeframe and summarizes key information regarding stock status and abundance. Please see NMFS' draft 2015 and 2014 Stock Assessment Reports (SAR), available at *www.nmfs.noaa.gov/pr/sars* and Garrison *et al*., 2008; Navy, 2007; Davis *et al*., 2000 for more detailed accounts of these stocks' status and abundance.

Table 3 – Marine mammals that could occur in the proposed activity area.

Species	Stock Name	Regulatory Status[1, 2]	Estimated Abundance	Relative Occurrence in W-151
Common bottlenose dolphin	Choctawatchee Bay	MMPA - S ESA – NL	179 CV = 0.04[3]	Uncommon
	Pensacola/East Bay	MMPA - S ESA – NL	33 CV = 0.80[4]	Uncommon
	St. Andrew Bay	MMPA - S ESA – NL	124 CV = 0.57[4]	Uncommon
	Gulf of Mexico Northern Coastal	MMPA - S ESA – NL	7,185 CV = 0.21[3]	Common
	Northern Gulf of Mexico Continental Shelf	MMPA - NC ESA – NL	51,192 CV = 0.10[3]	Uncommon
	Northern Gulf of Mexico Oceanic	MMPA - NC ESA – NL	5,806 CV = 0.39[4]	Uncommon
Atlantic spotted dolphin	Northern Gulf of Mexico	MMPA - NC ESA – NL	37,611[4] CV = 0.28	Common

[1] MMPA: D = Depleted, S = Strategic, NC = Not Classified.
[2] ESA: EN = Endangered, T = Threatened, DL = Delisted, NL = Not listed.
[3] NMFS Draft 2015 SAR (Waring *et al*., 2015)
[4] NMFS 2014 SAR (Waring *et al*., 2014)

An additional 19 cetacean species could occur within the northeastern Gulf of Mexico, mainly occurring at or beyond the shelf break (*i.e*., water depth of approximately 200 m (656.2 ft)) located beyond the W-151A test area. NMFS and Eglin AFB consider these

19 species to be rare or extralimital within the W-151A test location area. These species are the Bryde's whale (*Balaenoptera edeni*), sperm whale (*Physeter macrocephalus*), dwarf sperm whale (*Kogia sima*), pygmy sperm whale (*K. breviceps*), pantropical spotted dolphin (*Stenella atenuarta*), Blainville's beaked whale (*Mesoplodon densirostris*), Cuvier's beaked whale (*Ziphius cavirostris*), Gervais' beaked whale (*M. europaeus*), Clymene dolphin (*S. clymene*), spinner dolphin (*S. longirostris*), striped dolphin (*S. coeruleoalba*), killer whale (*Orcinus orca*), false killer whale (*Pseudorca crassidens*), pygmy killer whale (*Feresa attenuata*), Risso's dolphin (*Grampus griseus*), Fraser's dolphin (*Lagenodelphis hosei*), melon-headed whale (*Peponocephala electra*), rough-toothed dolphin (*Steno bredanensis*), and short-finned pilot whale (*Globicephala macrorhynchus*).

Of these species, only the sperm whale is listed as endangered under the ESA and as depleted throughout its range under the MMPA. Sperm whale occurrence within W-151A is unlikely because almost all reported sightings have occurred in water depths greater than 200 m (656.2 ft).

Because these species are unlikely to occur within the W-151A area, Eglin AFB has not requested and NMFS has not issued take authorizations for them. Thus, NMFS does not consider these species further in this notice.

Other Marine Mammals in the Proposed Action Area

The endangered West Indian manatee (*Trichechus manatus*) rarely occurs in the area (USAF, 2014). The U.S. Fish and Wildlife Service has jurisdiction over the manatee; therefore, we would not include a proposed Authorization to harass manatees and do not discuss this species further in this notice.

Potential Effects of the Specified Activity on Marine Mammals and Their Habitat

This section of the notice of the proposed Authorization (80 FR 7984, December 23, 2015) included a summary and discussion of the ways that components (*e.g.*, exposure to impulsive noise and pressure waves generated by live ordnance detonation at or near the surface of the water) of the specified activity, including mitigation may impact marine mammals and their habitat. The "Estimated Take by Incidental Harassment" section later in this document will include a quantitative analysis of the number of individuals that we expect Eglin AFB to take during this activity. The "Negligible Impact Analysis" section will include the analysis of how this specific activity would impact marine mammals. We will consider the content of the following sections: "Estimated Take by Incidental Harassment" and "Proposed Mitigation" to draw conclusions regarding the likely impacts of these activities on the reproductive success or survivorship of individuals—and from that consideration—the likely impacts of this activity on the affected marine mammal populations or stocks.

In summary, the Maritime WSEP training exercises proposed for taking of marine mammals under an Authorization have the potential to take marine mammals by exposing them to impulsive noise and pressure waves generated by live ordnance detonation at or near the surface of the water. Exposure to energy or pressure resulting from these detonations could result in Level A harassment (PTS) and by Level B harassment (TTS and behavioral). In addition, NMFS also considered the potential for harassment from vessel operations.

The potential effects of impulsive sound sources (underwater detonations) from the proposed training activities may include one or more of the following: tolerance, masking, disturbance, hearing threshold shift, stress response, and mortality. NMFS provided detailed information on these potential effects in the notice of the proposed Authorization (80 FR 7984, December 23, 2015). The information presented in that notice has not changed.

Anticipated Effects on Habitat

Detonations of live ordnance would result in temporary changes to the water environment. Munitions could hit the targets and not explode in the water. However, because the targets are located over the water, in water explosions could occur. An underwater explosion from these weapons could send a shock wave and blast noise through the water, release gaseous by-products, create an oscillating bubble, and cause a plume of water to shoot up from the water surface. However, these effects would be temporary and not expected to last more than a few seconds.

Similarly, Eglin AFB does not expect any long-term impacts with regard to hazardous constituents to occur. Eglin AFB considered the introduction of fuel, debris, ordnance, and chemical materials into the water column within its EA and determined the potential effects of each to be insignificant. Eglin AFB analyzed the potential effects of each in their EA and determined them to be insignificant. NMFS provided a summary of the analyses in the notice for the proposed Authorization (80 FR 7984, December 23, 2015). The information presented in that notice has not changed.

Mitigation

In order to issue an incidental take authorization under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, and other means of effecting the least practicable adverse impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and the availability of such species or stock for taking for certain subsistence uses (where relevant).

The NDAA of 2004 amended the MMPA as it relates to military-readiness activities and the incidental take authorization process such that "least practicable adverse impact" shall include consideration of personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

NMFS and Eglin AFB have worked to identify potential practicable and effective mitigation measures, which include a careful balancing of the likely benefit of any particular measure to the marine mammals with the likely effect of that measure on personnel safety, practicality of implementation, and impact on the "military-readiness activity." We refer the reader to Section 11 of Eglin AFB's application for more detailed information on the proposed mitigation measures which include the following:

Vessel-Based Monitoring: Eglin AFB would station a large number of range clearing boats (approximately 20 to 25) around the test site to prevent non-participating vessels from entering the human safety zone. Based on the composite footprint, range clearing boats will be located approximately (see Figure 11-1 in Eglin AFB's application). However, the actual distance will vary based on the size of the munition being deployed.

Trained protected species observers would be aboard five of these boats and will conduct protected species surveys before and after each test. The protected species survey vessels will be dedicated solely to observing for marine species during the pre-mission surveys while the remaining safety boats clear the area of non-authorized vessels. The protected species survey vessels will begin surveying the area at sunrise. The area to be surveyed will encompass the zone of influence (ZOI), which is 5 km (3.1 mi). Animals that may enter the area after Eglin AFB has completed the pre-mission surveys and prior to detonation would not reach the predicted smaller slight lung injury and/or mortality zones.

Because of human safety issues, observers will be required to leave the test area at least 30 minutes in advance of live weapon deployment and move to a position on the safety zone periphery, approximately 15.28 km (9.5 mi) from the detonation point. Observers will continue to scan for marine mammals from the periphery.

Determination of the Zone of Influence

Eglin AFB has created a sample day reflecting the maximum number of munitions that could be released and resulting in the greatest impact in a single mission day. However, this scenario is only a representation and may not accurately reflect how Eglin AFB may conduct actual operations. However, NMFS and Eglin AFB are considering this conservative assumption to calculate the impact range for mitigation monitoring measures. Thus, Eglin AFB has modeled, combined, and compared the sum of all energies from these detonations against thresholds with energy metric criteria to generate the accumulated energy ranges for this scenario. Table 4 lists these ranges which form the basis of the mitigation monitoring.

Table 4 – Distances (m) to harassment thresholds for an example mission day.

Munition	NEW (lbs)	Total # per Day	Detonation Scenario	Level A Harassment	Level B Harassment	
				PTS	TTS	Behavioral
				187 dB SEL	172 dB SEL	167 dB SEL
GBU-10 or GBU-24	945	1	Surface	5,120	12,384	15,960
GBU-12 or GBU-54	192	1	Surface			
AGM-65 (Maverick)	86	1	Surface			
GBU-39 (LSDB)	37	1	Surface			
AGM-114 (Hellfire)	20	3	(10 ft depth)			
AGM-175 (Griffin)	13	2	Surface			
2.75 Rockets	12	12	Surface			
PGU-13 HEI 30 mm	0.1	125	Surface			

AGM = air-to-ground missile; cal = caliber; CBU = Cluster Bomb Unit; ft = feet; GBU = Guided Bomb Unit; HEI = high explosive incendiary; lbs = pounds; mm = millimeters; N/A = not applicable; NEW = net explosive weight; PGU = Projectile Gun Unit; SDB = small diameter bomb; PTS = permanent threshold shift; TTS = temporary threshold shift; WCMD = wind corrected munition dispenser.

Based on the ranges presented in Table 4 and factoring operational limitations associated with survey-based vessel support for the missions, Eglin AFB estimates that during pre-mission surveys, the proposed monitoring area would be approximately 5 km (3.1 miles) from the target area, which corresponds to the Level A harassment threshold range. Eglin AFB proposes to survey the same-sized area for each mission day, regardless of the planned munition expenditures. By clearing the Level A harassment threshold range of protected species, animals that may enter the area after the completed pre-mission surveys but prior to detonation would not reach the smaller slight lung injury or mortality zones (presented in Table 6 later in this document). Because of human safety issues, Eglin AFB would require observers to leave the test area at least 30 minutes in advance of live weapon deployment and move to a position on the safety zone periphery, approximately 15 km (9.5 miles) from the detonation point. Observers would continue to scan for marine mammals from the periphery, but effectiveness would be limited as the boat would remain at a designated station.

Video Monitoring: In addition to vessel-based monitoring, Eglin AFB would position three high-definition video cameras on the GRATV anchored on-site, as described earlier, to allow for real-time monitoring for the duration of the mission. The camera configuration and actual number of cameras used would depend on specific mission requirements. In addition to monitoring the area for mission objective issues, the camera(s) would also monitor for the presence of protected species. A trained marine species observer from Eglin Natural Resources would be located in Eglin AFB's Central Control Facility, along with mission personnel, to view the video feed before and during test activities. The distance to which

objects can be detected at the water surface by use of the cameras is considered generally comparable to that of the human eye.

The GRATV will be located about 183 m (600 ft) from the target. The larger mortality threshold ranges correspond to the modified Goertner model adjusted for the weight of an Atlantic spotted dolphin calf, and extend from 0 to 237 m (0 to 778 ft) from the target, depending on the ordnance, and the Level A ranges for both common bottlenose and Atlantic spotted dolphins extend from 7 to 965 m (23 to 3,166 ft) from the target, depending on the ordnance and harassment criterion. Given these distances, observers could reasonably be expected to view a substantial portion of the mortality zone in front of the camera, although a small portion would be behind or to the side of the camera view. Based on previous monitoring reports for this activity, the pre-training surveys for delphinids and other protected species within the mission area are effective. Observers can view some portion of the Level A harassment zone, although the view window would be less than that of the mortality zone (a large percentage would be behind or to the side of the camera view).

If the high-definition video cameras are not operational for any reason, Eglin AFB will not conduct Maritime WSEP missions.

In addition to the two types of visual monitoring discussed earlier in this section, Eglin AFB personnel are present within the mission area (on boats and the GRATV) on each day of testing well in advance of weapon deployment, typically near sunrise. They will perform a variety of tasks including target preparation, equipment checks, etc., and will opportunistically observe for marine mammals and indicators as feasible throughout test preparation. However, we consider these observations as supplemental to the proposed mitigation monitoring and would only occur as time and schedule permits. Eglin AFB

personnel would relay information on these types of sightings to the Lead Biologist, as described in the following mitigation sections.

Pre-mission Monitoring

The purposes of pre-mission monitoring are to: (1) Evaluate the mission site for environmental suitability, and (2) verify that the ZOI (in this case, 5 km [3.1 mi]) is free of visually detectable marine mammals, as well as potential indicators of these species. On the morning of the mission, the Test Director and Safety Officer will confirm that there are no issues that would preclude mission execution and that weather is adequate to support mitigation measures.

Sunrise or Two Hours Prior to Mission

Eglin AFB range clearing vessels and protected species survey vessels will be on site at least two hours prior to the mission. The Lead Biologist on board one survey vessel will assess the overall suitability of the mission site based on environmental conditions (sea state) and presence/absence of marine mammal indicators. Eglin AFB personnel will communicate this information to Tower Control and personnel will relay the information to the Safety Officer in Central Control Facility.

One and One-Half Hours Prior to Mission

Vessel-based surveys will begin approximately one and one-half hours prior to live weapons deployment. Surface vessel observers will survey the ZOI (in this case, 5 km [3.1 mi]) and relay all marine species and indicator sightings, including the time of sighting, GPS location, and direction of travel, if known, to the Lead Biologist. The lead biologist will document all sighting information on report forms which he/she will submit to Eglin Natural Resources after each mission. Surveys would continue for approximately one hour. During

this time, Eglin AFB personnel in the mission area will also observe for marine species as feasible. If marine mammals or indicators are observed within the ZOI (5 km [3.1 mi]), the range will be declared "fouled," a term that signifies to mission personnel that conditions are such that a live ordnance drop cannot occur (*e.g.*, protected species or civilian vessels are in the mission area). If there are no observations of marine mammals or indicators of marine mammals, Eglin AFB would declare the range clear of protected species.

One-Half Hour Prior to Mission

At approximately 30 minutes to one hour prior to live weapon deployment, marine species observers will be instructed to leave the mission site and remain outside the safety zone, which on average will be 15.28 km (9.5 mi) from the detonation point. The actual size is determined by weapon net explosive weight and method of delivery. The survey team will continue to monitor for protected species while leaving the area. As the survey vessels leave the area, marine species monitoring of the immediate target areas will continue at the Central Control Facility through the live video feed received from the high definition cameras on the GRATV. Once the survey vessels have arrived at the perimeter of the safety zone (approximately 30 minutes after leaving the area per instructions from Eglin AFB, depending on actual travel time), Eglin AFB will declare the range as "green" and the mission will proceed, assuming all non-participating vessels have left the safety zone as well.

Execution of Mission

Immediately prior to live weapons drop, the Test Director and Safety Officer will communicate to confirm the results of marine mammal surveys and the appropriateness of proceeding with the mission. The Safety Officer will have final authority to proceed with, postpone, or cancel the mission. Eglin AFB would postpone the mission if:

- Any of the high-definition video cameras are not operational for any reason;
- Any marine mammal is visually detected within the ZOI (5 km [3.1 mi]).

Postponement would continue until the animal(s) that caused the postponement is: (1) confirmed to be outside of the ZOI (5 km [3.1 mi]) on a heading away from the targets; or (2) not seen again for 30 minutes and presumed to be outside the ZOI (5 km [3.1 mi]) due to the animal swimming out of the range;

- Any large schools of fish or large flocks of birds feeding at the surface are within the ZOI (5 km [3.1 mi]). Postponement would continue until Eglin AFB personnel confirm that these potential indicators are outside the ZOI (5 km [3.1 mi]):
- Any technical or mechanical issues related to the aircraft or target boats; or
- Any non-participating vessel enters the human safety zone prior to weapon release.

In the event of a postponement, protected species monitoring would continue from the Central Control Facility through the live video feed.

Post-Mission Monitoring

Post-mission monitoring determines the effectiveness of pre-mission mitigation by reporting sightings of any marine mammals. Post-detonation monitoring surveys will commence once the mission has ended or, if required, as soon as personnel declare the mission area safe. Vessels will move into the survey area from outside the safety zone and monitor for at least 30 minutes, concentrating on the area down-current of the test site. This area is easily identifiable because of the floating debris in the water from impacted targets. Up to 10 Eglin AFB support vessels will be cleaning debris and collecting damaged targets from this area thus spending several hours in the area once Eglin AFB completes the mission.

Observers will document and report any marine mammal species, number, location, and behavior of any animals observed to Eglin Natural Resources.

Mission Delays Due to Weather

Eglin AFB would delay or reschedule Maritime WSEP missions if the Beaufort sea state is greater than number 4 at the time of the testing activities. The Lead Biologist aboard one of the survey vessels will make the final determination of whether conditions are conducive for sighting protected species or not.

We have carefully evaluated Eglin AFB's proposed mitigation measures in the context of ensuring that we prescribe the means of effecting the least practicable impact on the affected marine mammal species and stocks and their habitat. Our evaluation of potential measures included consideration of the following factors in relation to one another:

- The manner in which, and the degree to which, the successful implementation of the measure is expected to minimize adverse impacts to marine mammals;
- The proven or likely efficacy of the specific measure to minimize adverse impacts as planned; and
- The practicability of the measure for applicant implementation.

Any mitigation measure(s) prescribed by NMFS should be able to accomplish, have a reasonable likelihood of accomplishing (based on current science), or contribute to the accomplishment of one or more of the general goals listed here:

1. Avoidance or minimization of injury or death of marine mammals wherever possible (goals 2, 3, and 4 may contribute to this goal).

2. A reduction in the numbers of marine mammals (total number or number at biologically important time or location) exposed to stimuli expected to result in incidental

take (this goal may contribute to 1, above, or to reducing takes by behavioral harassment only).

3. A reduction in the number of times (total number or number at biologically important time or location) individuals would be exposed to stimuli that we expect to result in the take of marine mammals (this goal may contribute to 1, above, or to reducing harassment takes only).

4. A reduction in the intensity of exposures (either total number or number at biologically important time or location) to training exercises that we expect to result in the take of marine mammals (this goal may contribute to 1, above, or to reducing the severity of harassment takes only).

5. Avoidance or minimization of adverse effects to marine mammal habitat, paying special attention to the food base, activities that block or limit passage to or from biologically important areas, permanent destruction of habitat, or temporary destruction/disturbance of habitat during a biologically important time.

6. For monitoring directly related to mitigation—an increase in the probability of detecting marine mammals, thus allowing for more effective implementation of the mitigation.

Based on our evaluation of Eglin AFB's proposed measures, as well as other measures that may be relevant to the specified activity, we have determined that the proposed mitigation measures provide the means of effecting the least practicable impact on marine mammal species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance. while also considering personnel safety,

practicality of implementation, and the impact of effectiveness of the military readiness activity.

Monitoring and Reporting

In order to issue an Authorization for an activity, section 101(a)(5)(D) of the MMPA states that we must set forth "requirements pertaining to the monitoring and reporting of such taking." The MMPA implementing regulations at 50 CFR 216.104(a)(13) indicate that requests for an authorization must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and our expectations of the level of taking or impacts on populations of marine mammals present in the proposed action area.

Eglin AFB submitted a marine mammal monitoring plan in their Authorization application. We have not modified or supplemented the plan based on comments or new information received from the public during the public comment period. Any monitoring requirement we prescribe should improve our understanding of one or more of the following:

- Occurrence of marine mammal species in action area (*e.g.*, presence, abundance, distribution, density).

- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) Action or environment (*e.g.*, source characterization, propagation, ambient noise); (2) Affected species (*e.g.*, life history, dive patterns); (3) Co-occurrence of marine mammal species with the action; or (4) Biological or behavioral context of exposure (*e.g.*, age, calving or feeding areas).

- Individual responses to acute stressors, or impacts of chronic exposures (behavioral or physiological).
- How anticipated responses to stressors impact either: (1) Long-term fitness and survival of an individual; or (2) Population, species, or stock.
- Effects on marine mammal habitat and resultant impacts to marine mammals.
- Mitigation and monitoring effectiveness.

The Authorization for Maritime WSEP operations will require the following measures. They are:

(1) Eglin AFB will track the use of the EGTTR for test firing missions and protected species observations, through the use of mission reporting forms.

(2) Eglin AFB will submit a summary report of marine mammal observations and Maritime WSEP activities to the NMFS Southeast Regional Office (SERO) and the Office of Protected Resources 90 days after expiration of the current Authorization. This report must include the following information: (i) Date and time of each Maritime WSEP exercise; (ii) a complete description of the pre-exercise and post-exercise activities related to mitigating and monitoring the effects of Maritime WSEP exercises on marine mammal populations; and (iii) results of the Maritime WSEP exercise monitoring, including number of marine mammals (by species) that may have been harassed due to presence within the activity zone.

(3) Eglin AFB will monitor for marine mammals in the proposed action area. If Eglin AFB personnel observe or detect any dead or injured marine mammals prior to testing, or detects any injured or dead marine mammal during live fire exercises, Eglin AFB must cease operations and submit a report to NMFS within 24 hours.

(4) Eglin AFB must immediately report any unauthorized takes of marine mammals (*i.e.*, serious injury or mortality) to NMFS and to the respective Southeast Region stranding network representative. Eglin AFB must cease operations and submit a report to NMFS within 24 hours.

Monitoring Results From Previously Authorized Activities

Eglin AFB complied with the mitigation and monitoring required under the previous Authorization for 2015 WSEP activities. Marine mammal monitoring occurred before, during, and after each Maritime WSEP mission. During the course of these activities, Eglin AFB's monitoring did not suggest that they had exceeded the take levels authorized under Authorization. In accordance with the 2015 Authorization, Eglin AFB submitted a monitoring report (available at: *www.nmfs.noaa.gov/pr/permits/incidental/military.htm*).

Under the 2015 Authorization, Eglin AFB anticipated conducting Maritime WSEP training missions over approximately two to three weeks, but actually conducted a total of eight mission days: four days (February 9, 10, 11, and 12, 2015) associated with inert ordnance delivery and four days (March 16, 17, 18, and 19, 2015) associated with live ordnance delivery.

During the February 2015 missions, Eglin AFB released two inert CBU-105s in air which resulted in no acoustic impacts to marine mammals. The CBU-105 is a cluster bomb unit that detonates in air (airburst), contains 10 submunition cylinders with each cylinder containing four sub-submunitions (skeets) which fire inert projectiles.

During the March 2015 live fire missions, Eglin AFB expended four AGM-65 Mavericks and six AGM-114 Hellfire missiles against remotely-controlled boats approximately 27 km (17 mi) offshore Santa Rosa Island, FL. Net explosive weights of the

munitions that detonated at the water surface or up to 3 m (10 ft) below the surface are 86 lbs for the AGM-65 Maverick missiles and 13 pounds for the AGM-114 Hellfire missiles. Eglin AFB conducted the required monitoring for marine mammals or indicators of marine mammals (*e.g.*, flocks of birds, baitfish schools, or large fish schools) before, during, and after each mission and observed only two species of marine mammals: the common bottlenose dolphin and Atlantic spotted dolphin. Total protected species observed during pre-mission surveys ranged between 149 and 156 individuals and Eglin AFB confirmed that marine mammals were outside of the ZOI (5 km [3.1 mi]) at the conclusion of each pre-mission survey.

For one mission day (March 17, 2015), Eglin AFB personnel extended the duration of the pre-mission surveys to continue to monitoring a pod of 10 bottlenose dolphins until the vessel captain could confirm that the pod remained outside the ZOI (5 km [3.1 mi]) and did not change travel direction. Eglin AFB delayed weapons delivery as required by the Authorization. Eglin AFB continued with their mission activities after all animals cleared the ZOI (5 km [3.1 mi]).

After each mission, Eglin AFB re-entered the ZOI (5 km [3.1 mi]) to begin post-mission surveys for marine mammals and debris-clean-up operations. Eglin AFB personnel did not observe reactions indicative of disturbance during the pre-mission surveys and did not observe any marine mammals during the post-mission surveys. In summary, Eglin AFB reports that no observable instances of take of marine mammals occurred incidental to the Maritime WSEP training activities under the 2015 Authorization.

Estimated Numbers of Marine Mammals Taken by Harassment

The NDAA amended the definition of harassment as it applies to a "military readiness activity" to read as follows (Section 3(18)(B) of the MMPA): (i) any act that injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild [Level A Harassment]; or (ii) any act that disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of natural behavioral patterns, including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering, to a point where such behavioral patterns are abandoned or significantly altered [Level B Harassment].

NMFS' analysis identified the physiological responses, and behavioral responses that could potentially result from exposure to underwater explosive detonations. In this section, we will relate the potential effects to marine mammals from underwater detonation of explosives to the MMPA regulatory definitions of Level A and Level B harassment. This section will also quantify the effects that might occur from the proposed military readiness activities in W-151.

At NMFS' recommendation, Eglin AFB updated the thresholds used for onset of temporary threshold shift (TTS; Level B Harassment) and onset of permanent threshold shift (PTS; Level A Harassment) to be consistent with the thresholds outlined in the Navy's report titled, "Criteria and Thresholds for U.S. Navy Acoustic and Explosive Effects Analysis Technical Report," which the Navy coordinated with NMFS. NMFS believes that the thresholds outlined in the Navy's report represent the best available science. The report is available on the internet at: *http://aftteis.com/Portals/4/aftteis/Supporting%20Technical%20Documents/Criteria_and_Thresholds_for_US_Navy_Acoustic_and_Explosive_Effects_Analysis-Apr_2012.pdf.*

Level B Harassment

Of the potential effects described earlier in this document, the following are the types of effects that fall into the Level B harassment category:

Behavioral Harassment—Behavioral disturbance that rises to the level described in the above definition, when resulting from exposures to non-impulsive or impulsive sound, is Level B harassment. Some of the lower level physiological stress responses discussed earlier would also likely co-occur with the predicted harassments, although these responses are more difficult to detect and fewer data exist relating these responses to specific received levels of sound. When predicting Level B harassment based on estimated behavioral responses, those takes may have a stress-related physiological component.

Temporary Threshold Shift (TTS)—As discussed previously, TTS can affect how an animal behaves in response to the environment, including conspecifics, predators, and prey. NMFS classifies TTS (when resulting from exposure to explosives and other impulsive sources) as Level B harassment, not Level A harassment (injury).

Level A Harassment

Of the potential effects that were described earlier, the following are the types of effects that fall into the Level A Harassment category:

Permanent Threshold Shift (PTS)—PTS (resulting either from exposure to explosive detonations) is irreversible and NMFS considers this to be an injury.

Table 5 in this document outlines the acoustic thresholds used by NMFS for this Authorization when addressing noise impacts from explosives.

Table 5 –Impulsive sound explosive thresholds used by Eglin AFB in its current acoustics impacts modeling.

Group	Behavior		Slight Injury			Mortality
	Behavioral	TTS	PTS	Gastro-	Lung	

				Intestinal Tract		
Mid-frequency Cetaceans	167 dB SEL	172 dB SEL or 23 psi	187 dB SEL or 45.86 psi	104 psi	39.1 $M^{1/3}$ $(1+[D_{Rm}/10.081])^{1/2}$ Pa-sec Where: M = mass of the animals in kg D_{Rm} = depth of the receiver (animal) in meters	91.4 $M^{1/3}$ $(1+D_{Rm}/10.081])^{1/2}$ Pa-sec Where: M = mass of the animals in kg D_{Rm} = depth of the receiver (animal) in meters

Eglin AFB modeled that all explosives would detonate at a 1.2 m (3.9 ft) water depth despite the training goal of hitting the target, resulting in an above water or on land explosion. For sources detonated at shallow depths, it is frequently the case that the explosion may breech the surface with some of the acoustic energy escaping the water column. Table 6 provides the estimated maximum range or radius, from the detonation point to the various thresholds described in Table 5.

Table 6 – Distances (m) to harassment thresholds from Eglin AFB's explosive ordnance.

Munition	NEW (lbs)	Total #	Detonation Scenario	Mortality	Level A Harassment				Level B Harassment		
				Modified Goertner Model 1	Slight Lung Injury	GI Track Injury	PTS		TTS		Behavioral
					Modified Goertner Model 2	237 dB SPL	187 dB SEL	230 dB Peak SPL	172 dB SEL	224 dB Peak SPL	167 dB SEL
Bottlenose Dolphin											
GBU-10 or GBU-24	945	2	Surface	199	350	340	965	698	1,582	1,280	2,549
GBU-12 or GBU-54	192	6	Surface	111	233	198	726	409	2,027	752	2,023
AGM-65 (Maverick)	86	6	Surface	82	177	150	610	312	1,414	575	1,874
GBU-39 (LSDB)	37	4	Surface	59	128	112	479	234	1,212	433	1,543
AGM-114 (Hellfire)	20	15	(10 ft depth)	110	229	95	378	193	2,070	354	3,096
AGM-175 (Griffin)	13	10	Surface	38	83	79	307	165	1,020	305	1,343
2.75 Rockets	12	100	Surface	36	81	77	281	161	1,010	296	1,339
PGU-13 HEI 30 mm	0.1	1,000	Surface	0	7	16	24	33	247	60	492
Atlantic Spotted Dolphin and Unidentified Dolphin[1]											
GBU-10	945	2	Surface	237	400	340	965	698	1,582	1,280	2,549

or GBU-24											
GBU-12 or GBU-54	192	6	Surface	138	274	198	726	409	2,027	752	2,023
AGM-65 (Maverick)	86	6	Surface	101	216	150	610	312	1,414	575	1,874
GBU-39 (LSDB)	37	4	Surface	73	158	112	479	234	1,212	433	1,543
AGM-114 (Hellfire)	20	15	(10 ft depth)	135	277	95	378	193	2,070	354	3,096
AGM-175 (Griffin)	13	10	Surface	47	104	79	307	165	1,020	305	1,343
2.75 Rockets	12	100	Surface	45	100	77	281	161	1,010	296	1,339
PGU-13 HEI 30 mm	0.1	1,000	Surface	0	9	16	24	33	247	60	492

AGM = air-to-ground missile; cal = caliber; CBU = Cluster Bomb Unit; ft = feet; GBU = Guided Bomb Unit; HEI = high explosive incendiary; lbs = pounds; mm = millimeters; N/A = not applicable; NEW = net explosive weight; PGU = Projectile Gun Unit; SDB = small diameter bomb; PTS = permanent threshold shift; TTS = temporary threshold shift; WCMD = wind corrected munition dispenser

[1]Unidentified dolphin can be either bottlenose or Atlantic spotted dolphin. Eglin AFB based the mortality and slight lung injury criteria on the mass of a newborn Atlantic spotted dolphin.

Eglin AFB uses the distance information shown in Table 6 to calculate the radius of impact for a given threshold from a single detonation of each munition/detonation scenario, then combine the calculated impact radii with density estimates (adjusted for depth distribution) and the number of live munitions to provide an estimate of the number of marine mammals potentially exposed to the various impact thresholds. The ranges presented in Table 6 represent a radius of impact for a given threshold from a single detonation of each munition/detonation scenario. They do not consider accumulated energies from multiple detonation occurring within the same 24-hour time period.

Density Estimation

Density estimates for bottlenose dolphin and spotted dolphin were derived from two sources (see Table 7). NMFS provided detailed information on Eglin AFB's derivation of density estimates for the common bottlenose and Atlantic spotted dolphins in a previous **Federal Register** notice for a proposed Authorization to Eglin AFB for the same activities

(79 FR 72631, December 8, 2014). The information presented in that notice has not changed and NMFS refers the reader to Section 3 of Eglin AFB's application for detailed information on all equations used to calculate densities presented in Table 7.

Table 7 - Marine mammal density estimates within Eglin AFB's EGTTR.

Species	Density (animals/km^2)
Bottlenose dolphin[1]	1.194
Atlantic spotted dolphin[2]	0.265
Unidentified bottlenose dolphin/Atlantic spotted dolphin[2]	0.009

[1]Source: Garrison, 2008; adjusted for observer and availability bias by the author.
[2]Source: Fulling *et al*., 2003; adjusted for negative bias based on information provided by Barlow (2003; 2006).

Take Estimation

NMFS recalculated the takes proposed in previous notice for the proposed Authorization (80 FR 7984, December 23, 2015) based upon the Commission's recommendations to eliminate the double counting of the estimated take for each species and appropriately rounding take estimates before summing the total take. Table 8 indicates the modeled potential for lethality, injury, and non-injurious harassment (including behavioral harassment) to marine mammals in the absence of mitigation measures. Eglin AFB and NMFS estimate that approximately 14 marine mammals could be exposed to injurious Level A harassment noise levels (187 dB SEL) and approximately 671 animals could be exposed to Level B harassment (TTS and Behavioral) noise levels in the absence of mitigation measures.

Table 8 – Modeled number of marine mammals potentially affected by Maritime WSEP operations.

Species	Mortality	Level A Harassment (PTS only)	Level B Harassment (TTS)	Level B Harassment (Behavioral)
Bottlenose dolphin	0	14	255	353
Atlantic spotted dolphin	0	0	23	40
Unidentified bottlenose dolphin/Atlantic spotted dolphin	0	0	0	0
TOTAL	0	14	278	393

Based on the mortality exposure estimates calculated by the acoustic model, zero marine mammals are expected to be affected by pressure levels associated with mortality or serious injury. Zero marine mammals are expected to be exposed to pressure levels associated with slight lung injury or gastrointestinal tract injury.

NMFS generally considers PTS to fall under the injury category (Level A Harassment). An animal would need to stay very close to the sound source for an extended amount of time to incur a serious degree of PTS, which could increase the probability of mortality. In this case, it would be highly unlikely for this scenario to unfold given the nature of any anticipated acoustic exposures that could potentially result from a mobile marine mammal that NMFS generally expects to exhibit avoidance behavior to loud sounds within the EGTTR.

NMFS has relied on the best available scientific information to support the issuance of Eglin AFB's authorization. In the case of authorizing Level A harassment, NMFS has estimated that no more than 14 bottlenose dolphins and no Atlantic spotted dolphins could, although unlikely, experience minor permanent threshold shifts of hearing sensitivity (PTS). The available data and analyses, as described more fully in a previous notice for a proposed Authorization (80 FR 7984, December 23, 2015) and this notice include extrapolation results of many studies on marine mammal noise-induced temporary threshold shifts of hearing sensitivities. An extensive review of TTS studies and experiments prompted NMFS to conclude that possibility of minor PTS in the form of slight upward shift of hearing threshold at certain frequency bands by a few individuals of marine mammals is extremely low, but not unlikely.

Negligible Impact Analysis and Determinations

NMFS has defined "negligible impact" in 50 CFR 216.103 as ". . . an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival." A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.*, population-level effects). An estimate of the number of Level B harassment takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be "taken" through behavioral harassment, we consider other factors, such as the likely nature of any responses (*e.g.*, intensity, duration), the context of any responses (*e.g.*, critical reproductive time or location, migration), as well as the number and nature of estimated Level A harassment takes, the number of estimated mortalities, and effects on habitat.

To avoid repetition, the discussion below applies to all the species listed in Table 8 for which we propose to authorize incidental take for Eglin AFB's activities.

In making a negligible impact determination, we consider:

- The number of anticipated injuries, serious injuries, or mortalities;
- The number, nature, and intensity, and duration of Level B harassment;
- The context in which the takes occur (*e.g.*, impacts to areas of significance, impacts to local populations, and cumulative impacts when taking into account successive/contemporaneous actions when added to baseline data);
- The status of stock or species of marine mammals (*i.e.*, depleted, not depleted, decreasing, increasing, stable, impact relative to the size of the population);
- Impacts on habitat affecting rates of recruitment/survival; and

- The effectiveness of monitoring and mitigation measures to reduce the number or severity of incidental take.

For reasons stated previously in this document and based on the following factors, Eglin AFB's specified activities are not likely to cause long-term behavioral disturbance, serious injury, or death.

The takes from Level B harassment would be due to potential behavioral disturbance and TTS. The takes from Level A harassment would be due to some form of PTS. Activities would only occur over a timeframe of two to three weeks in beginning in February 2016, with one or two missions occurring per day. It is possible that some individuals may be taken more than once if those individuals are located in the exercise area on two different days when exercises are occurring.

Noise-induced threshold shifts (TS, which includes PTS) are defined as increases in the threshold of audibility (*i.e*., the sound has to be louder to be detected) of the ear at a certain frequency or range of frequencies (ANSI 1995; Yost 2000). Several important factors relate to the magnitude of TS, such as level, duration, spectral content (frequency range), and temporal pattern (continuous, intermittent) of exposure (Yost 2000; Henderson *et al*. 2008). TS occurs in terms of frequency range (Hz or kHz), hearing threshold level (dB), or both frequency and hearing threshold level (CDC, 2004).

In addition, there are different degrees of PTS: ranging from slight/mild to moderate and from severe to profound (Clark, 1981). Profound PTS or the complete loss of the ability to hear in one or both ears is commonly referred to as deafness (CDC, 2004; WHO, 2006). High-frequency PTS, presumably as a normal process of aging that occurs in humans and other terrestrial mammals, has also been demonstrated in captive cetaceans (Ridgway and

Carder, 1997; Yuen *et al*. 2005; Finneran *et al*., 2005; Houser and Finneran, 2006; Finneran *et al*. 2007; Schlundt *et al*., 2011) and in stranded individuals (Mann *et al.*, 2010).

In terms of what is analyzed for the potential PTS (Level A harassment) in marine mammals as a result of Eglin AFB's Maritime WSEP operations, if it occurs, NMFS has determined that the levels would be slight/mild because research shows that most cetaceans show relatively high levels of avoidance. Further, it is uncommon to sight marine mammals within the target area, especially for prolonged durations. Results from monitoring programs associated other Eglin AFB activities and for Eglin AFB's 2015 Maritime WSEP activities have shown the absence of marine mammals within the EGTTR during and after maritime operations. Avoidance varies among individuals and depends on their activities or reasons for being in the area.

NMFS' predicted estimates for Level A harassment take are likely overestimates of the likely injury that will occur. NMFS expects that successful implementation of the required vessel-based and video-based mitigation measures would avoid Level A take in some instances. Also, NMFS expects that some individuals would avoid the source at levels expected to result in injury. Nonetheless, although NMFS expects that Level A harassment is unlikely to occur at the numbers proposed to be authorized, because it is difficult to quantify the degree to which the mitigation and avoidance will reduce the number of animals that might incur PTS, we are proposing to authorize (and analyze) the modeled number of Level A takes (14), which does not take the mitigation or avoidance into consideration. However, we anticipate that any PTS incurred because of mitigation and the likely short duration of exposures, would be in the form of only a small degree of permanent threshold shift and not total deafness.

While animals may be impacted in the immediate vicinity of the activity, because of the short duration of the actual individual explosions themselves (versus continual sound source operation) combined with the short duration of the Maritime WSEP operations, NMFS has determined that there will not be a substantial impact on marine mammals or on the normal functioning of the nearshore or offshore Gulf of Mexico ecosystems. We do not expect that the proposed activity would impact rates of recruitment or survival of marine mammals since we do not expect mortality (which would remove individuals from the population) or serious injury to occur. In addition, the proposed activity would not occur in areas (and/or times) of significance for the marine mammal populations potentially affected by the exercises (*e.g.*, feeding or resting areas, reproductive areas), and the activities would only occur in a small part of their overall range, so the impact of any potential temporary displacement would be negligible and animals would be expected to return to the area after the cessations of activities. Although the proposed activity could result in Level A (PTS only, not slight lung injury or gastrointestinal tract injury) and Level B (behavioral disturbance and TTS) harassment of marine mammals, the level of harassment is not anticipated to impact rates of recruitment or survival of marine mammals because the number of exposed animals is expected to be low due to the short-term (*i.e.*, four hours a day or less) and site-specific nature of the activity. We do not anticipate that the effects would be detrimental to rates of recruitment and survival because we do not expect serious of extended behavioral responses that would result in energetic effects at the level to impact fitness.

Moreover, the mitigation and monitoring measures proposed for the Authorization (described earlier in this document) are expected to further minimize the potential for harassment. The protected species surveys would require Eglin AFB to search the area for

marine mammals, and if any are found in the live fire area, then the exercise would be suspended until the animal(s) has left the area or relocated. Moreover, marine species observers located in the Eglin control tower would monitor the high-definition video feed from cameras located on the instrument barge anchored on-site for the presence of protected species. Furthermore, Maritime WSEP missions would be delayed or rescheduled if the sea state is greater than a 4 on the Beaufort Scale at the time of the test. In addition, Maritime WSEP missions would occur no earlier than two hours after sunrise and no later than two hours prior to sunset to ensure adequate daylight for pre- and post-mission monitoring.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the mitigation and monitoring measures, NMFS finds that Eglin AFB's Maritime WSEP operations will result in the incidental take of marine mammals, by Level A and Level B harassment only, and that the taking from the Maritime WSEP exercises will have a negligible impact on the affected species or stocks.

Impact on Availability of Affected Species or Stock for Taking for Subsistence Uses

There are no relevant subsistence uses of marine mammals implicated by this action. Therefore, NMFS has determined that the total taking of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

Endangered Species Act (ESA)

Due to the location of the activity, no ESA-listed marine mammal species are likely to be affected; therefore, NMFS has determined that this proposed Authorization would have no effect on ESA-listed species. Therefore, NMFS has determined that a section 7

consultation under the ESA is not required for the issuance of an MMPA Authorization to Eglin AFB.

National Environmental Policy Act (NEPA)

In 2015, Eglin AFB provided NMFS with an EA titled, Maritime Weapon Systems Evaluation Program (WSEP) Operational Testing in the Eglin Gulf Testing and Training Range (EGTTR), Florida. The EA analyzed the direct, indirect, and cumulative environmental impacts of the specified activities on marine mammals. NMFS, after review and evaluation of the Eglin AFB EA for consistency with the regulations published by the Council of Environmental Quality (CEQ) and NOAA Administrative Order 216-6, Environmental Review Procedures for Implementing the National Environmental Policy Act, adopted the EA. After considering the EA, the information in the 2014 IHA application, and the **Federal Register** notice, as well as public comments, NMFS has determined that the issuance of the 2015 Authorization was not likely to result in significant impacts on the human environment; adopted Eglin AFB's EA under 40 CFR 1506.3; and issued a FONSI statement on issuance of an Authorization under section 101(a)(5) of the MMPA.

In accordance with NOAA Administrative Order 216-6 (Environmental Review Procedures for Implementing the National Environmental Policy Act, May 20, 1999), NMFS will again review the information contained in Eglin AFB's EA and determine whether the EA accurately and completely describes the preferred action alternative and the potential impacts on marine mammals. Based on this review and analysis, NMFS has reaffirmed the 2015 FONSI statement on issuance of an annual authorization under section 101(a)(5) of the MMPA or supplement the EA if necessary.

Authorization

As a result of these determinations, NMFS has issued an Incidental Harassment Authorization to Eglin AFB for conducting Maritime WSEP activities, for a period of one year from the date of issuance, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated.

Dated: February 8, 2016.

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Perry F. Gayaldo ,

Deputy Director,

Office of Protected Resources,

National Marine Fisheries Service.

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